PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Patient-centered attitudes among medical students in Mali, West Africa: a cross-sectional study
AUTHORS	Hurley, Emily; Doumbia, Seydou; Kennedy, Caitlin; Winch, Peter; Roter, Debra; Murray, Sarah; Harvey, Steven

VERSION 1 – REVIEW

REVIEWER	Bart Criel Professor Public Health, Public Health Department, Institute of Tropical Medicine, Antwerp, Belgium
REVIEW RETURNED	11-Sep-2017

GENERAL COMMENTS	This is a very interesting paper on an important issue: attitudes of West African medical students vis-à-vis patient-centered care. Given the challenges that sub-Saharan African health systems face in terms of provision of quality health care, this is a very relevant and timely study indeed. I have three (rather major) comments to make after an careful reading of this (well-written) manuscript. Firstly, it would be nice to give more room to situate the current problems (sub-Saharan) African health care delivery systems face in terms of providing quality care, and more specifically patient-centered care. It would be appropriate, I tend to think, to go a bit deeper than is the case now in analyzing the current problem in the context of Mali, and highlight its main determinants. Secondly, I would propose to have some space (in the discussion and/or the conclusion) on system-wide solutions to be envisaged in order to address the current quality problems in health care delivery in Mali (and in many other Western African countries for that matter). The issue of training curricula is mentioned; rightly so, but other avenues for 'solutions' do exist. It is likely that one should go for a multi-pronged sort of response. I take the liberty to attach a overview paper that may inspire the authors in that respect. Thirdly, I must admit that I do not feel able to discuss and (eventually) critique the statistical part on data analysis. I propose that another reviewer, with more skills and expertise in this domain, has a closer look at this specific section of the paper. More minor comments the authors are invited to consider are the following: - can the authors be more precise on what % of students was actually reached in the survey? The denominator (i.e. number of students registered in the different academic years targeted) must be available... - on page 14, the authors refer (reference 30) to a previous survey conducted in Mali on 'developing skills in sharing power'.

	It is not without importance to note that this was a study conducted in the frame of an HIV/AIDS program - for which substantial external donor resources are available, and for which there is strong 'externally-driven' attention for patient-centered care approaches. It may seem strange to say so, but HIV-AIDS patients tend to be 'privileged' when it comes to the quality of the care they receive... - on page 17, in the concluding paragraph, the authors refer to the challenge of patient-centered care for chronic conditions. Rightly so. Patient-centered care, however, is also very relevant for acute conditions.

REVIEWER	Roy William Mayega Makerere University School of Public Health, Kampala, Uganda
REVIEW RETURNED	19-Sep-2017

GENERAL COMMENTS	This is a generally well conceptualised and executed study. The authors need to strengthen the limitation section to capture the clear challenges with sample size determination, sampling procedures, sample allocation to strata, and non-availability of the response rate and how these may affect generalizability of the findings. The statistical test underlying the ANOVA to compare mean scores also needs to be clarified. The article explores an issue of high public health importance. Patient-centered care is increasingly important in ensuring activated patients who can take charge of their treatment process. It also identifies and attempts to contribute to a key gap: The lack of integration of formal curricula on patient-centeredness in medical schools in sub-Saharan Africa and a clear paucity of studies that examine this issue in sub-Saharan Africa. The paper is generally well structured. The methods are described with clarity. Standard metrics and tools that have been used elsewhere are used. The description of the measures is clear and the analyses used are robust. The article is highly informative. However, the authors could enhance the article by addressing a few comments as follows: Methods 1. A brief explanation of why Years 2 and 4 are excluded would add more clarity. In many medical schools, the lower years are often pre-clinical and patient contact is minimal. It is not clear whether medical students in Bamako get contact with patients as early as their 1st year and the extent of the contact, for them to have subtle experiences with patients 2. The paper describes distribution of surveys to classes on-site and offsite. However, the sampling approach and basis for the sample size and its allocation to the different years is not described. The paper describes combining both years 5 and 6 to ensure an adequate sample size for this sub-group but the minimum sample size per stratum is not described. This information could guide other researchers in replicating the study in other medical schools. 3. The paper notes that because questionnaires were distributed through social networks especially for the higher years, it is no possible to determine the response rate.

	The correct approach would have been to record how many questionnaires were issued to each class leader. Not knowing the response rate risks biasing the assessment to students who had positive attitudes. Since study has already been executed, this should be noted as a limitation in the design Results 4. The fact that first year students make up three fifths of the sample, middle year students make up about one quarter yet higher year students make up one 6th should be noted as a limitation in the design as it is not clear if the sample represents the actual structure in the medical school. Is the population structure in the medical school a pyramid with a disproportionately large number of students in the lower years (that might have less clinical exposure)? 5. It is not clear how the comparison of mean scores using one-way ANOVA results in chi-square test statistics (x2). The statistical test used for the ANOVA procedure needs to be clarified. 6. (Optional suggestion) The low factor loadings and low inter-item correlations in the initially anticipated two-factor structure was low, meaning reduced evidence for an underlying two factor structure. Suggestion; could principle components analysis generate some additional information on whether the data supports a clear principle component for the items used in the scales?

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1
Reviewer Name: Bart Criel
Institution and Country: Professor Public Health, Public Health Department, Institute of Tropical Medicine, Antwerp, Belgium
Please state any competing interests or state 'None declared': None declared

Please leave your comments for the authors below
This is a very interesting paper on an important issue: attitudes of West African medical students vis-à-vis patient-centered care. Given the challenges that sub-Saharan African health systems face in terms of provision of quality health care, this is a very relevant and timely study indeed.
I have three (rather major) comments to make after an careful reading of this (well-written) manuscript.
Firstly, it would be nice to give more room to situate the current problems (sub-Saharan) African health care delivery systems face in terms of providing quality care, and more specifically patient-centered care. It would be appropriate, I tend to think, to go a bit deeper than is the case now in analyzing the current problem in the context of Mali, and highlight its main determinants.

• We thank the reviewer for this comment and have taken the time to apply major revisions to the introduction to address it. The introduction now opens with a paragraph that describes the relevance of patient-centered care in the context of current issues facing health systems in sub-Saharan Africa. We have also added details about the barriers to patient-centered care specific to sub-Saharan Africa (4th paragraph) and about challenges in healthcare delivery specific to providers in Mali (last paragraph of introduction).

Secondly, I would propose to have some space (in the discussion and/or the conclusion) on system-wide solutions to be envisaged in order to address the current quality problems in health care delivery in Mali (and in many other Western African countries for that matter). The issue of training curricula is mentioned; rightly so, but other avenues for 'solutions' do exist. It is likely that one should go for a multi-pronged sort of response. I take the liberty to attach a overview paper that may inspire the authors in that respect.

• We appreciate this comment and were especially pleased to review the highly relevant paper that the reviewer attached. We have made efforts to expand the concluding paragraph to incorporate system-wide solutions in addition to training curricula, and have referenced some specific recommendations raised in the reviewer's suggested article.

Thirdly, I must admit that I do not feel able to discuss and (eventually) critique the statistical part on data analysis. I propose that another reviewer, with more skills and expertise in this domain, has a closer look at this specific section of the paper.

• We appreciate the reviewer's proposal and found that reviewer #2 gave an excellent review of the statistical analysis.

More minor comments the authors are invited to consider are the following:
- can the authors be more precise on what % of students was actually reached in the survey? The denominator (i.e. number of students registered in the different academic years targeted) must be available...

• We have added detail about the total population in the "Sampling and data collection" subsection of the methods:

"The entire student body consisted of 3,846 students. […] Registered students in these academic years included 1,214 in the 1st year, 571 in the 3rd year, 415 in the 5th year, and 401 in the 6th year."

• We have also clarified the percentage of students reached by the survey in the first sentence of the results:

"We collected surveys from 453 students, representing 17% of the total population of students in the selected academic years."

• We would like to note that our goal was not to reach every student in these classes, and in response to comments from Reviewer #2, we have clarified our sampling strategy in our methods section.

- on page 14, the authors refer (reference 30) to a previous survey conducted in Mali on 'developing skills in sharing power'. It is not without importance to note that this was a study conducted in the frame of an HIV/AIDS program - for which substantial external donor resources are available, and for which there is strong 'externally-driven' attention for patient-centered care approaches. It may seem strange to say so, but HIV-AIDS patients tend to be 'privileged' when it comes to the quality of the care they receive...
• We agree that the fact that the referenced study was conducted in an HIV care setting is an important detail that should be included in the text. We also agree that patient-centered care approaches are more supported and more prevalent in HIV care settings, which we believe makes the unmet need for shared-power among patients in the study even more striking. We have revised and expanded the sentences in question to add more context about the study:

"Developing skills in sharing power can help providers increase patient trust and satisfaction, medication adherence, and efficiency in consultations [4,8]. Further, a prior study among HIV patients in Mali suggests an unmet demand for shared power. In response to vignettes of patient-provider interactions, 40% of participants preferred “shared power” over a provider-dominant style (36%) or no preference (24%). [37]. Those patients were who expressed preference for “shared power” versus “provider-dominant” were also more likely to give low ratings of the quality of patient-provider communication at their care facility, suggesting disconnect between their preferred style and the style they experience."

- on page 17, in the concluding paragraph, the authors refer to the challenge of patient-centered care for chronic conditions. Rightly so. Patient-centered care, however, is also very relevant for acute conditions.

• We have revised the concluding paragraph to widen our reference to the relevance of patient-centered care, and now use the broader term “multifaceted public health challenges of the 21st century”. This term references the list of public health challenges that open the revised introduction, which includes both chronic and acute conditions.

Reviewer: 2
Reviewer Name: Roy William Mayega
Institution and Country: Makerere University School of Public Health, Kampala, Uganda
Please state any competing interests or state ‘None declared’: None declared

Please leave your comments for the authors below
This is a generaally well conceptualised and executed study. The authors need to strengthen the limitation section to capture the clear challenges with sample size determination, sampling procedures, sample allocation to strata, and non-availability of the response rate and how these may affect generalizability of the findings. The statistical test underlying the ANOVA to compare mean scores also needs to be clarified. Further desciption of these issues is attached.

Methods
1. A brief explanation of why Years 2 and 4 are excluded would add more clarity. In many medical schools, the lower years are often pre-clinical and patient contact is minimal. It is not clear whether medical students in Bamako get contact with patients as early as their 1st year and the extent of the contact, for them to have subtle experiences with patients.

• Our goal was to conduct the survey with students in a range of academic years, with varying exposure with patient contact. Though the survey was cross-sectional, surveying students in the first year (before patient contact) gives us insight into what type of attitudes students may have when they first enter training, before they have extensive exposure to patients. To clarify the extent of patient contact in each year, we have added the following sentence in the “study design and participants” sub-section of the results:

"Participants included 1st year students (who train in the classroom with little to no patient contact), 3rd year students (who have some observational exposure to patients in addition to classroom work) and 5th and 6th year students (who train in clinical locations with regular patient contact)."

• To clarify why we sampled Years 1, 3, 5/6, and not years 2 and 4, we added the sentence in the “sampling and data collection” sub-section of the results:

"To obtain a parsimonious representation of students in their early, mid and advanced years of training, we chose to administer the survey to 1st, 3rd and 5th/6th year students."

2. The paper describes distribution of surveys to classes on-site and offsite. However, the sampling approach and basis for the sample size and its allocation to the different years is not described. The paper describes combining both years 5 and 6 to ensure an adequate sample size for this sub-group but the minimum sample size per stratum is not described. This information could guide other researchers in replicating the study in other medical schools.

• We have added information on our original sample size calculation and sampling design in the "sampling and data collection" sub-section of the methods:

"In order to have sufficient power (1-β=0.80) to detect a small effect size for a one-way ANOVA comparing the three groups (α=0.05), we aimed to sample 289 students per group. To sample first-year students, we distributed and collected surveys in large lecture classes through a systematic sampling design. We also visited lectures for 3rd year students, opening up the survey to all students attending. Fifth and 6th years are similar in structure- students are typically off-site in clinical placements. Anticipating challenges obtaining an adequate sample size for one class of students, we decided to sample both 5th and 6th year students as one group. For these students, we distributed and collected the surveys through class leaders."

• We have also added a comment in the results section explaining the difficulties we had in obtaining this goal sample size at the end of the "sample demographics":

"Attendance at classroom lectures and the rate of distribution through social networks were lower than anticipated, resulting in a lower than expected sample size."

3. The paper notes that because questionnaires were distributed through social networks especially for the higher years, it is no possible to determine the response rate. The correct approach would have been to record how many questionnaires were issued to each class leader. Not knowing the response rate risks biasing the assessment to students who had positive attitudes. Since study has already been executed, this should be noted as a limitation in the design

• We agree with the reviewer's comment and regret not implementing this method during data collection. We have acknowledged this with added text in the limitations section:

"Secondly, a large proportion of students were not present on campus during survey administration and surveys were distributed through social networks for 5th and 6th year students. These factors may have resulted in selection bias (students with more positive attitudes may have been more likely to be selected). The more informal social network distribution limited us from calculating a valid overall response rate."

Results

4. The fact that first year students make up three fifths of the sample, middle year students make up about one quarter yet higher year students make up one 6th should be noted as a limitation in the design as it is not clear if the sample represents the actual structure in the medical school. Is the population structure in the medical school a pyramid with a disproportionately large number of students in the lower years (that might have less clinical exposure)?

• We originally intended for equal samples among the three groups (as stated in our revised methods sections), but sampling challenges (discussed in the revised limitations section) limited us from achieving our goal sample sizes for middle and higher year students. (Please see above comments for references in the revised manuscript). The reviewer does bring up an important issue about the population structure of the medical school. The over-representation of first-year students is somewhat (but not perfectly) reflective of the over-enrollment of first-year students, and the subsequent attrition of students who do not pass exams. We have added this contextual detail about the population structure in “Sampling and data collection” sub-section of the methods:

"The entire student body consisted of 3,846 students […]

Registered students in these academic years included 1,214 in the 1st year, 571 in the 3rd year, 415 in the 5th year, and 401 in the 6th year. The larger number of students in the first year is explained by the structure of the training. After the first year, a smaller proportion of students pass exams admitting them to subsequent training."

5. It is not clear how the comparison of mean scores using one-way ANOVA results in chisquare test statistics (x2). The statistical test used for the ANOVA procedure needs to be clarified.

• We thank the reviewer for catching this error and have corrected the ANOVA results so that they report F-test statistics (not x2).

6. (Optional suggestion) The low factor loadings and low inter-item correlations in the initially anticipated two-factor structure was low, meaning reduced evidence for an underlying two factor structure. Suggestion; could principle components analysis generate some additional information on whether the data supports a clear principle component for the items used in the scales?

• We thank the reviewer for the suggestion. We actually did conduct a principal components analysis as part of an exploratory factor analysis to see if the observed data formed any clear latent structure. We summarize the findings in the last paragraph of the results:

"Eigenvalues and parallel principal components analysis suggested a seven-factor model, but many individual items exhibited consistently low loadings for any given factor. We repeated the EFA with various iterations, dropping items with high uniqueness and poor loading, yet loadings remained low and we could not identify an interpretable factor structure with suitable goodness-of-fit statistics."

VERSION 2 – REVIEW

REVIEWER	Roy William Mayega Makerere University School of Public Health, Makerere University, Uganda
REVIEW RETURNED	03-Dec-2017

GENERAL COMMENTS	All comments arising from the previous review have been satisfactorily addressed.